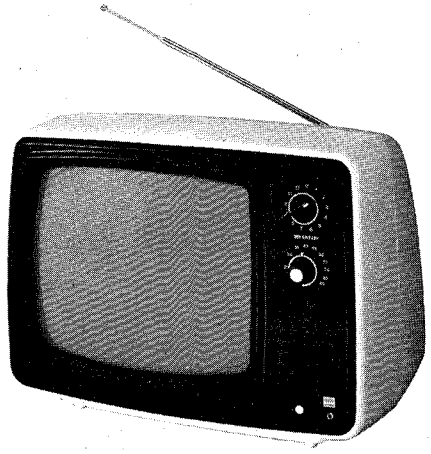
SHARP Service Manual



Solid State Portable TV

MODEL 12P-30N

SPECIFICATIONS

Power Supply	220 Volts 50 Hz AC or 12 Volts DC
Power Consumption	30 Watts AC or 15 Watts DC
Tuning Range	CCIR Standard System VHF Channel 2 ~ 12 UHF Channel 21 ~ 69
Intermediate Frequency	Picture 38.9 MHz Sound 33.4 MHz
Antenna Input Impedance	75 ohm Un balanced
Intercarrier Sound System	5.5 MHz
Audio Output	1 Watts (Max)
Speaker Size & Type	32 ohm 8 cm Round Type P.D.S.
Dimensions	Approx. 15-63/64"(W) x 11-57/64"(H) x 12-3/64"(D)
Weight	Approx. 15.2 lbs.

Warning: Operation of this receiver outside the cabinet or with the covers removed, involves a shock hazard from the receiver power supplies. Work on the receiver should not be attempted by anyone who is not thoroughly familiar with precautions necessary when working on high voltage equipment.

Caution: Do not install, remove, or handle the picture tube in any manner unless shatterproof goggles are worn. People not so equipped should be kept away while handling picture tubes. Keep itcture tube away from the body while handling.

SAFETY TEST

If the receiver becomes damaged or has been dis-assembled for any reason, the following safety test should be performed.

1. Inspect lead dress inside receiver; all leads should be properly connected and wires and/or cables should not touch power resistors.
2. Verify that all chassis insulators are properly installed and are not broken.
3. Reassemble the receiver completely.
4. Connect the receiver to a 220V, 50 Hz power outlet and turn "ON".
5. A VTVM, a 1500 ohm, 1W resistor and a ground extension lead with alligator clips at each end are required for making voltage measurements. Set the VTVM to obtain readings on the lowest AC VOLTS scale. Connect the ground lead of the VTVM and one end of the ground extension lead to the ground side of the AC power outlet or a known ground source such as a cold water pipe. Connect the 1500 ohm resistor between the other end of the ground extension lead and the tip of the voltage probe of the VTVM. AC voltage measurements must then be made by firmly applying the tip of the voltage probe to the following points:

TEST POINTS

VHF/UHF ANTENNA TERMINALS' CONTROL PANEL CHASSIS MOUNTING SCREWS, ALL KNOBS

If any reading is higher than 1.0V R.M.S., the cause should be immediately identified and corrected.Reverse connection of receiver AC line cord plug in the 220V, 50Hz AC power outlet and recheck voltage readings. If any reading is higher than 1.0V R.M.S., the cause should be immediately indentified and corrected.

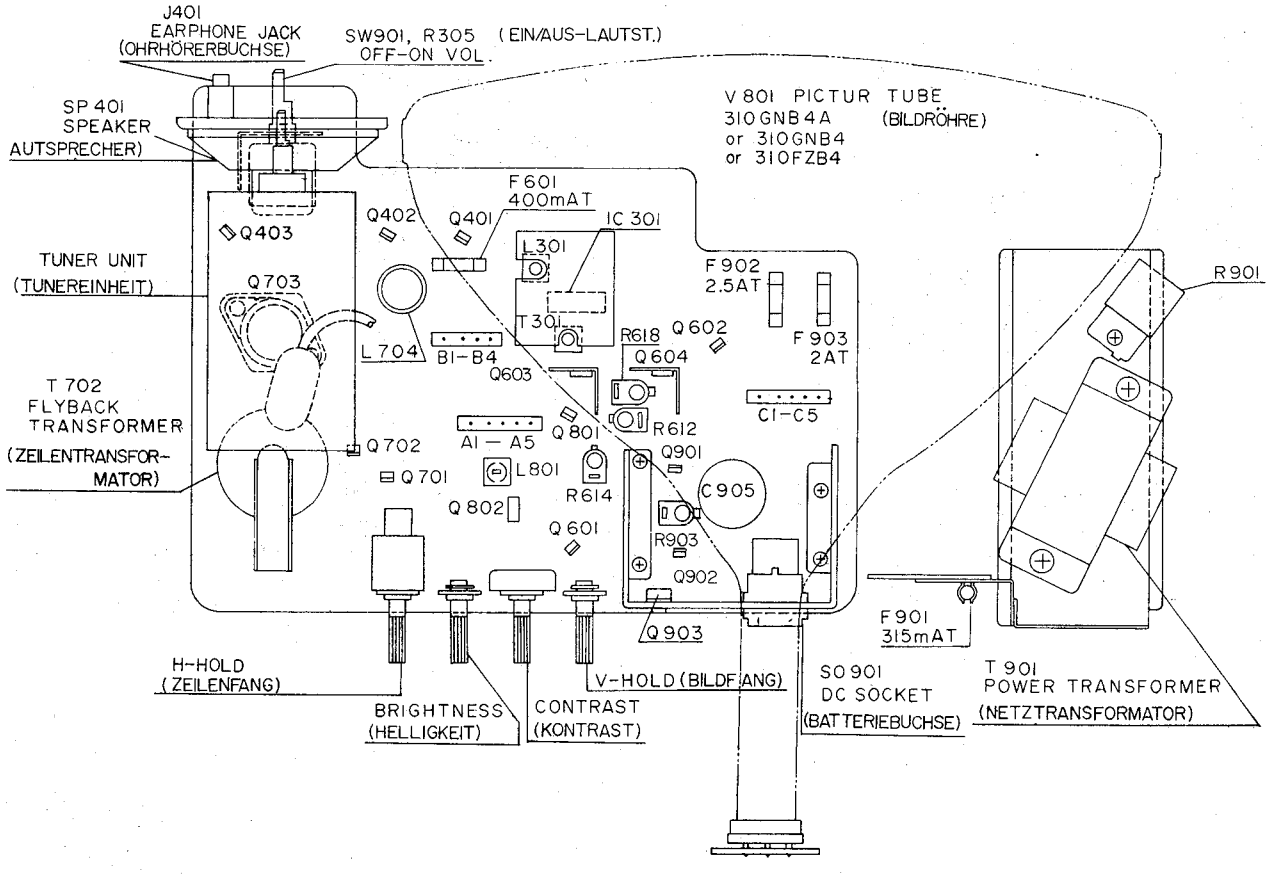


Figure 1. CHASSIS LAYOUT

■ **Safety Check at Servicing**

1. Make repairs carefully!
   1) When replacing the parts, be sure to use the specified ones. (Fuse, power cord, high tension circuit components, power circuit components, internal wiring leads).
   2) At servicing, also check for parts location, spacing, wiring, soldering and arrangement of insulating materials (tube, tape, PVC sheet etc.).
2. Recheck the safety after repairs!
   1) Make sure the receiver is free from contamination of dust, solder chips, waste wire, etc.
   2) Check for the insulation by using a tester, etc. (Between terminals of AC plug, between the antenna terminal plate and exposed metallic parts).
   3) Make sure the tuner cover, high tension box case, rear lid, bottom lid, etc. have been properly set in place.

   Let the users have a proper knowledge to operate the receiver.

DC OUTPUT VOLTAGE ALIGNMENT

1. Set the AC voltage to 220 Volts (50Hz)
2. Set the AC position, and switch SW901 to turn on the unit. At the time, make sure that the unit has been in a normal condition.
3. Set the +B adjust control (R903) to 11.5 ± 0.2 Volts at TP901.
   Caution: +B voltage is not adjust to over 12V for protection integrated circuit.

AGC Alignment

1. Rotate the RF AGC control (R253) to the maximum counter-clockwise.
2. Receive a test pattern in normal operating receiver condition. (at CCIR 5 ch.)
3. Set the electric field intensity to 60dB ± 2dB and RF oscillator to the proper frequency.
4. Adjust the AGC control (R254) to 1.0Vp-p ± 0.1V detection output at TP801 that is verifyed oscilloscope.
5. Watching the picture in normal operating condition, rotate the RF AGC control (R253) to adjust it just before appearance of the noise in the picture.
6. Set the electric field intensity to 90dB ± 2dB and verify no anomalous developing as follows are appears.
   a. Excessive Contrast b. Horizontal sync lost partry.

VERTICAL AND HORIZONTAL CIRCUITS ALIGNMENT

Round Adjustment of Each Section

1. Set the AC line voltage to 220 volts and verify the DC output voltage is 11.5 ± 0.2 volts.
2. Receive a test pattern in normal operating receiver condition. (at CCIR)
3. Rotate the Brightness and Contrast controls to maximum clockwise.
4. Adjust the H-Hold coil (L701) to synchronize the picture horizontally.
5. Adjust the V-Hold control (R608) to synchronize the picture vertically.
6. Adjust the V-Lin (R614), V-Bias (R618) and V-Size (R612) controls to the best vertical linearity and picture size.
7. Both horizontal and vertical are accomplished by rotating the centering ring mounted on the rear of the deflection yoke assembly.

V-Bias, V-Lin and V-Size Adjustment

Stabilizing vertically, proceed the following steps.

1. Receive a test pattern signal in normal operating receiver condition.
2. Connect input of the oscilloscope to test point (TP601)
3. Adjust the V-Bias (R618) to obtain the waveform shown in figure 2.
4. Adjust the V-Line control (R614) to obtain the synthertical pattern (top and bottom) and the best linearity.
5. Adjust the V-Size control (R612) to obtain the 8 ± 2% over scanning.

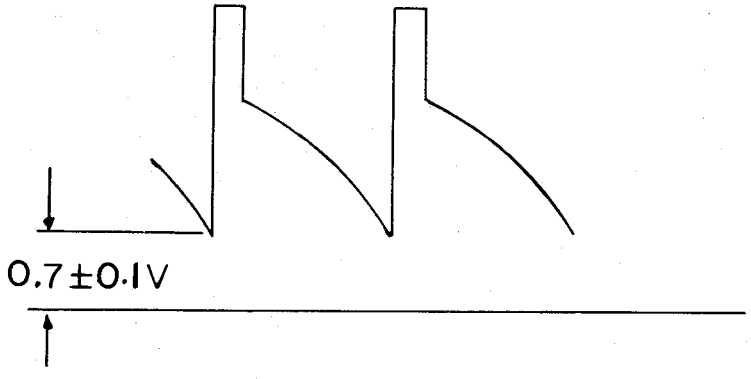


Figure 2

H-Hold and Horizontal Amplitude Alignment

1. Set the AC line voltage to 220 Volts and verify the DC output Voltage 11.5 ± 0.2 Volts.
2. Receive a test pattern in normal operating condition. (at CCIR)
3. Turn counterclockwise the H-Hold coil (L701) until the image will be distorted, then turn it clockwise until the image will resume its normal condition and suppose the pattern center position found at this time as being the point "a". Next, turn it clockwise until the image will be distorted, then turn it counterclockwise until the image will resume its original condition and suppose the pattern center position found this time as being the point "B". Finally, turn it counterclockwise until the pattern center comes to the gemetrical center between the points "A" and "b".
4. Set AC-DC selector switch to DC position and set DC power supply voltage to the value where the raster will disappear. Then, adjust the centering magnet to make the raster come to the center of CRT.
5. Set AC-DC selector switch to AC position and adjust the over scanning to the range of 10% to 12%. (When the over scanning is found to exceed 12%, cut out the factory jumper for H-WIDTH to remove C717. With contrast control at "MAX" and bright control at "MIN", make sure the image is not distorted at both ends.)

Cautions on Replacement of Telescopic Antenna

When replacing the telescopic antenna (QANTR0013TAZZ) with a new one, observe the following.

1. Assemble the components together as shown below.
2. Clamp the nut with an appropriate torque.
3. After clamping the nut, apply adhesive agent to its top to prevent it from loosening.

(1) Telescopic antenna
(2) Plain washer (A)
(3) Cabinet
(4) Antenna angle
(5) Spring washer
(6) Plain washer (B)
(7) Plain washer (C)
(8) Lock nut

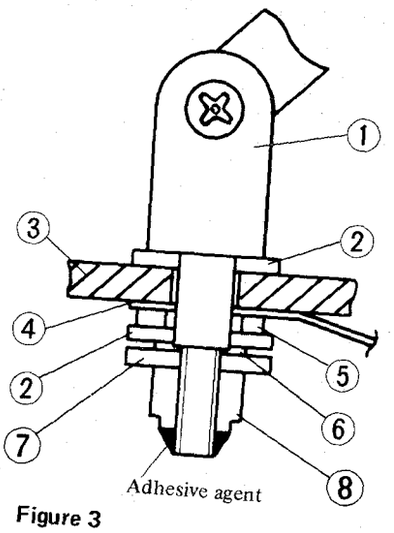


Figure 3

CHASSIS REMOVAL

Whenever it becomes necessary to remove the chassis from the cabinet, proceed in the following manner.

1. Remove the four screws Ⓐ from the back cabinet.
2. Pull out the UHF Channel and Fine Tuning knob from the front cabinet.
3. Pull out the main chassis and power transformer angle.
4. Remove the one screw Ⓑ from the Tuner angle
5. Remove the two speaker tips Ⓒ CRT socket Ⓓ coating earth lead Ⓔ and anode cap Ⓕ.
6. Loosen the deflection yoke cramping screw Ⓖ and pull the deflection yoke out of the CRT neck.

Removing and Installing Picture Tube

In order to remove or replace the picture tube, the chassis assemblies must be removed.
Refer to CHASSIS REMOVAL procedure.
When the chassis has been removed, proceed as follows.

1. Lay the cabinet face down on a soft pad so as not to mar the picture tube.
2. Remove the four screws Ⓗ fixing the picture tube.
3. Remove the picture tube from the cabinet.

CAUTION: Refer to the caution label on the high voltage comportment cover. Always avoid handling the neck of the picture tube.

4. Fix the picture tube in the position of the front cabinet and fix four screws.

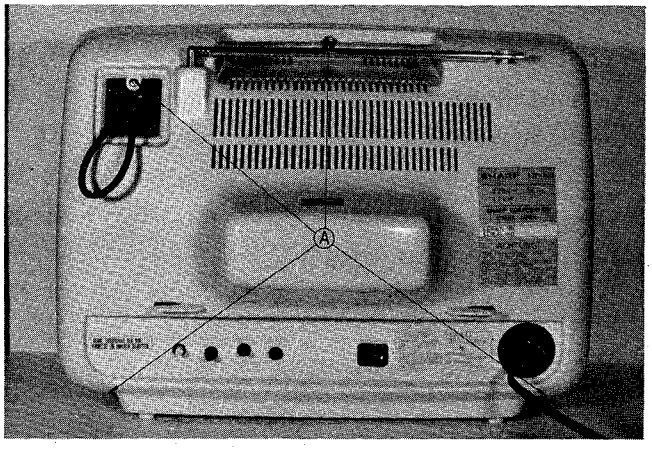


Figure 4

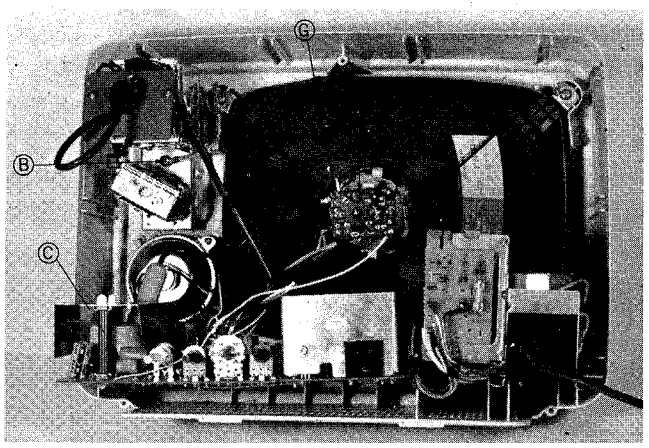


Figure 5

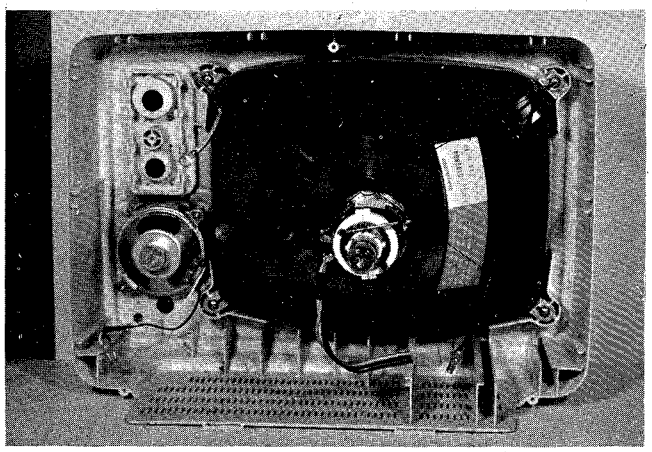


Figure 6

PICTURE IF ALIGNMENT

1. Supply the output of the sweep generator to TP203 (Base of Q202) through a 470 ohm resistor and a 0.01 MFD capacitor in series.
2. Connect input terminal of the oscilloscope to TP802 (Emitter of Q801).
3. Supply the 7 ~ 8V DC fixed bias to TP201.
4. Adjust coils (L203 and L204) to obtain the waveform shown in figure 7.
5. Supply the output of the sweep generator to TP101 (on VHF Tuner) through a 470 ohm resistor and a 0.01 MFD capacitor in series.
6. Supply the 4.5 ± 0.2V DC fixed bias to TP202.
7. Adjust the transformer (T201) until the maximum amplitude waveform is obtained on the oscilloscope.
8. Adjust the transformer T111 (in VHF Tuner) and L201 to obtain the waveform shown in figure 8.
9. If not obtain the waveform shown in figure 8, readjust the coils (L203 and L204) and the transformers (T111 and L201).

5.5 MHz TRAP ALIGNMENT

1. Supply the 5.5 MHz center sweep output of the sweep generator to TP801 (base of Q801) through a 470 ohm resistor and a 0.01 MFD capacitor.
2. Supply the 8V DC fixed bias to TP201.
3. Connect the oscilloscope to the cathode of CRT.
4. Adjust the coil L801 to set the minimum amplitude of 5.5 MHz.

SOUND IF ALIGNMENT

1. Supply the 8V DC fixed bias to TP201.
2. Supply the FM 400Hz at 100% modulation of the sweep generator to TP801 (base of Q801) through a 0.01 MFD capacitor in series.
3. Connect the oscilloscope to TP401. (Rotate the volume control to the minimum counter-clockwise)
4. Set the output of the sweep generator to 100dB.
5. Adjust the coil (L301) until the maximum amplitude waveform is obtained on the oscilloscope.
6. Set the output of the sweep generator to approximately 40dB. (Drop out of limiter)
7. Adjust the transformer (T301) to obtain the waveform shown in figure 9.
   If fail the above adjustment, the waveform should obtain as figure 10.

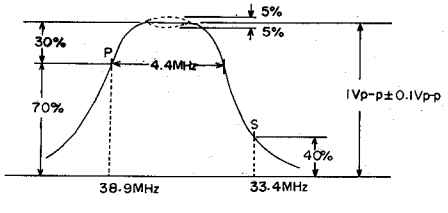


Figure 7

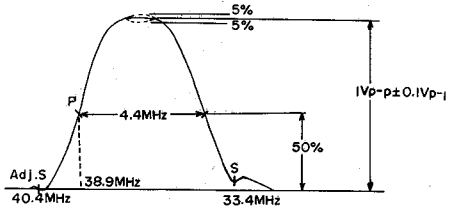


Figure 8

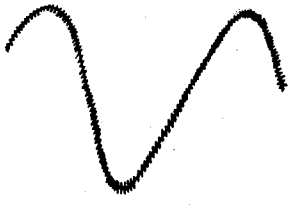


Figure 9

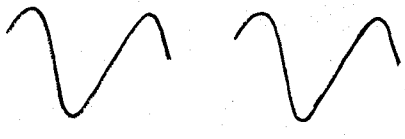
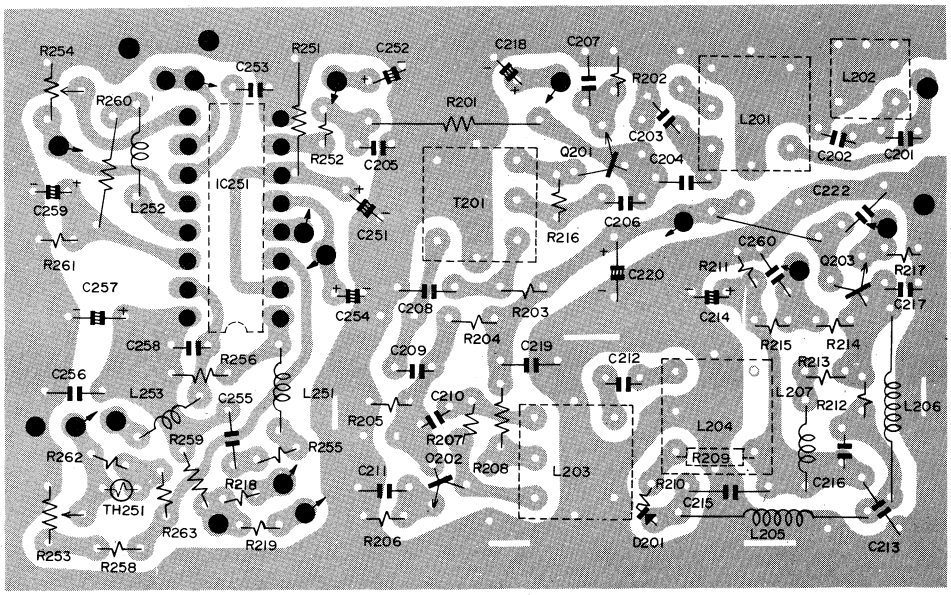
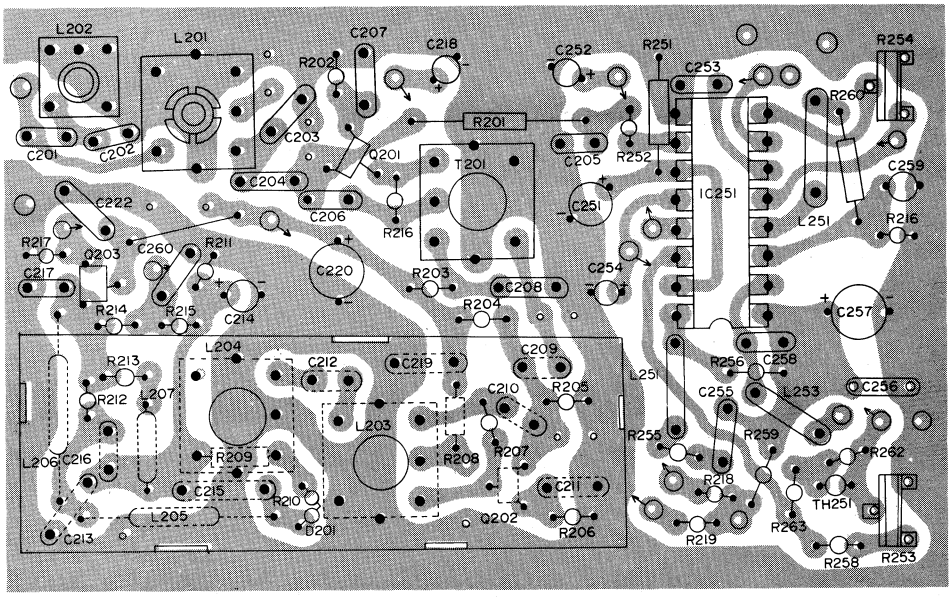


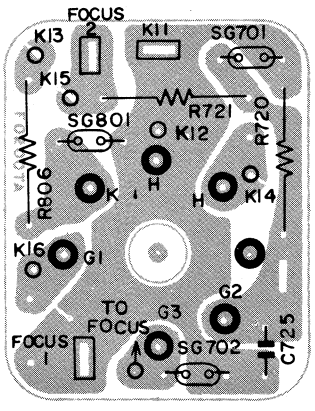
Figure 10



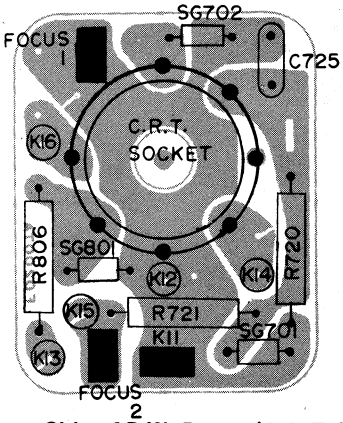
Wiring Side of P.W. Board (Pix. IF Circuit)



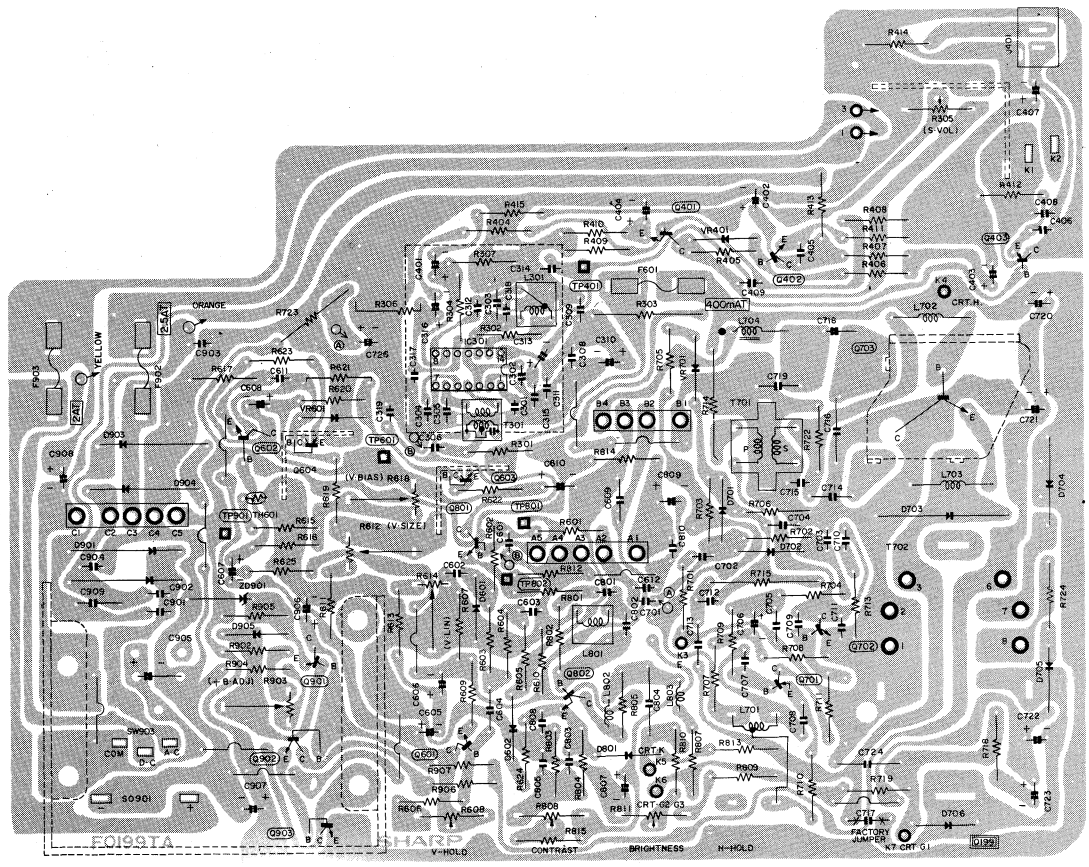
Component Side of P.W. Board (Pix. IF Circuit)



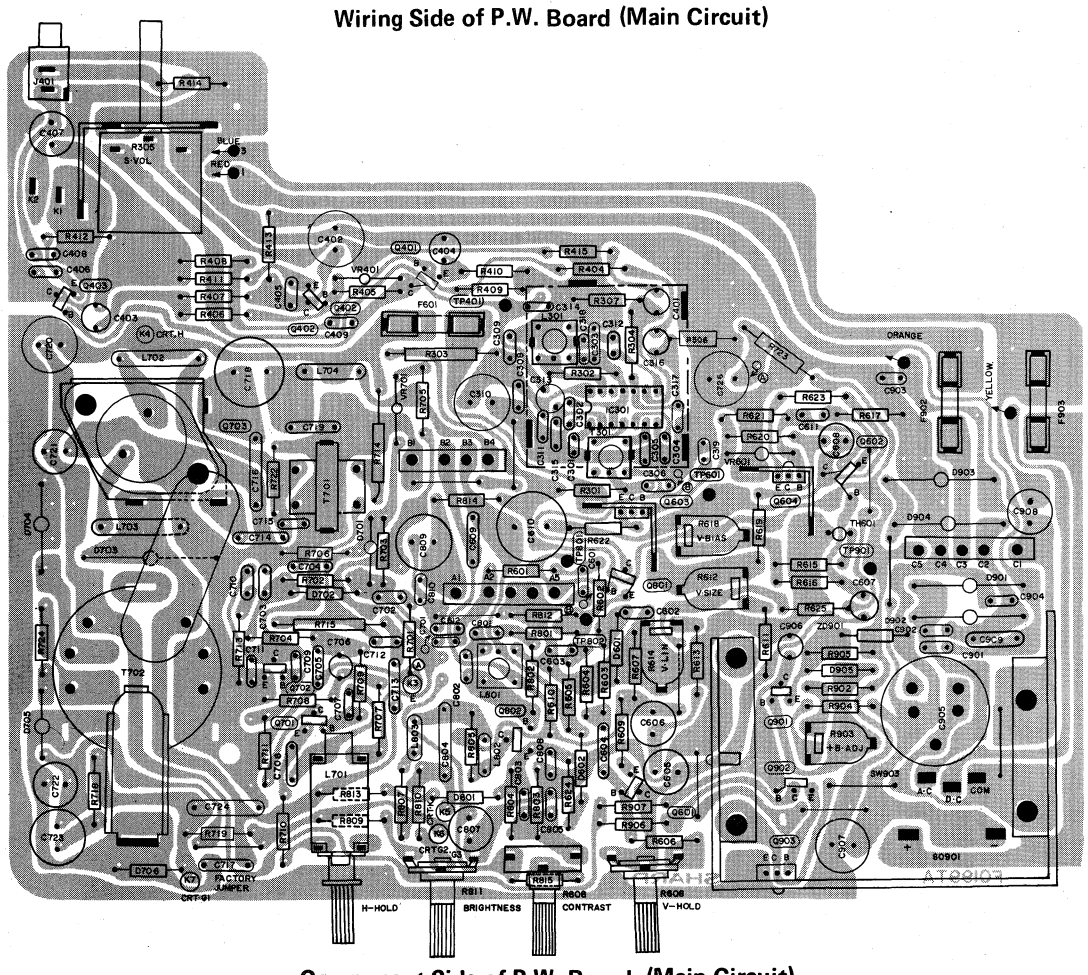
Wiring Side of P.W. Board (C.R.T Circuit)



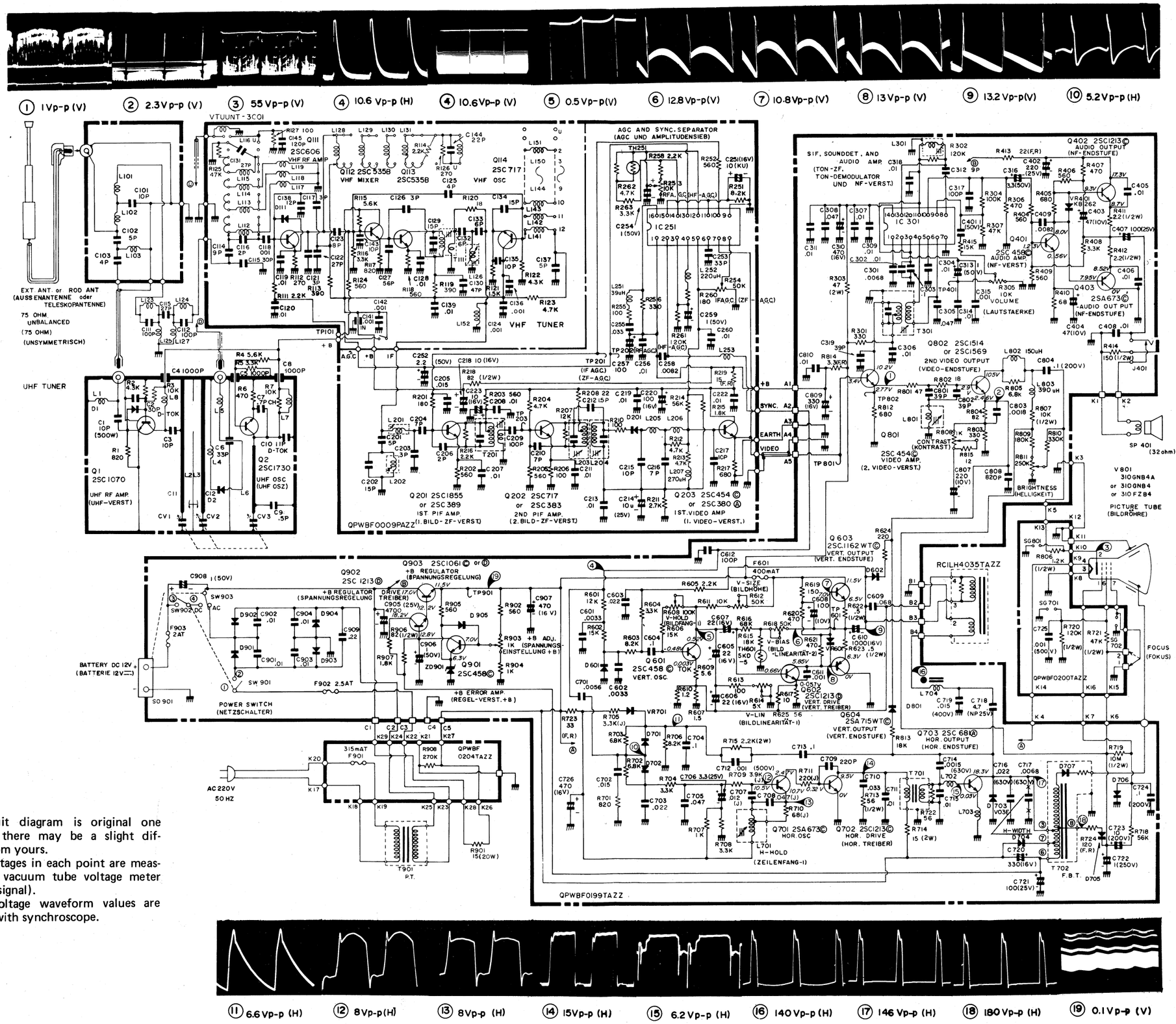
Component Side of P.W. Board (C.R.T Circuit)



Wiring Side of P.W. Board (Main Circuit)



Component Side of P.W. Board (Main Circuit)



NOTE:

(1) This circuit diagram is original one Therefore there may be a slight difference from yours.

(2) All the voltages in each point are measured with vacuum tube voltage meter (No input signal).

(3) All the voltage waveform values are measured with synchroscope.

REPLACEMENT PARTS LIST

It is recommended to use genuine factory SHARP replacement parts to assure fine performance.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order fulled promptly and correctly please furnish the following informations.

1 MODEL NUMBER
2 REF. NO.
3 PART NO.
4 DESCRIPTION

The listed part numbers are being applied for 13 digits of the alphanomercial code systems.

TUBE AND SEMICONDUCTION

REF. NO.	PART NO.	DESCRIPTION	CODE
V801	310FZB or 310GNB4 or 310GNB4A	Picture tube	BN
IC251	RH-IX0007TAZZ	Integrated Circuit, AGC and Sync. Separator	AP
IC301	RH-IX0001TAZZ	Integrated Circuit, Sound IF Amp., Sound IF Detector and Audio Amp.	AS
Q1	2SC1070	Transistor, UHF RF Amp.	AG
Q2	2SC1730	Transistor, UHF Oscillator	AE
Q111	2SC606	Transistor, VHF RF Amp.	AE
Q112	2SC535B	Transistor, VHF Mixer-1	AF
Q113	2SC535B	Transistor, VHF Mixer-2	AF
Q114	2SC717	Transistor, VHF Oscillator	AF
Q201	2SC1855 or 2SC389	Transistor, 1st Pix IF Amp.	AE
Q202	2SC717 or 2SC383	Transistor, 2nd Pix IF Amp.	AF
Q203	2SC454 Ⓒ or 2SC380 Ⓐ	Transistor, 1st Video Amp.	AE
Q401	2SC458 Ⓒ	Transistor, Audio Amp.	AF
Q402	2SC1213 Ⓒ	Transistor, Audio Output	AF
Q403	2SA673 Ⓒ	Transistor, Audio Output	AE
Q601	2SC458 Ⓒ TOK	Transistor, Vertical Oscillator	AE
Q602	2SC1213 Ⓓ	Transistor, Vertical Drive	AE
Q603	2SC1162WT Ⓒ	Transistor, Vertical Output	AG
Q604	2SA715WT Ⓒ	Transistor, Vertical Output	AH
Q701	2SA673 Ⓒ	Transistor, Horizontal Oscillator	AE
Q702	2SC1213 Ⓒ	Transistor, Horizontal Drive	AF
Q703	2SC681 Ⓐ	Transistor, Horizontal Output	AU
Q801	2SC454 Ⓒ	Transistor, 2nd Video Amp.	AE
Q802	2SC1514 or 2SC1569	Transistor, Video Output	AH
Q901	2SC458 Ⓒ	Transistor, +B Error Amp.	AE
Q902	2SC1213 Ⓓ	Transistor, +B Regulator Drive	AE
Q903	2SC1061 Ⓒ or Ⓓ	Transistor, +B Regulator	AH
D1	1S1555	Diode, UHF RF Amp. Protector	AC
D2	1S2187	Diode, UHF Mixer	AE
D111	1S1555	Diode, VHF RF Amp. Protector	AC
D201	1N60	Diode, PIF Detector	AC
D601	RH-DX0033TAZZ	Diode, Vertical Circuit	AD
D602	RH-DX0033TAZZ	Diode, Vertical Blanking Circuit	AD
D701, D702	1N34A	Diode, AFC Phase Detector	AC
D703	RH-DX0057TAZZ	Diode, Damper	AD
D704	RH-DX0056TAZZ	Diode, Boost	AG
D705, D706	RH-DX0043TAZZ	Diode, Horizontal Circuit	AD
D801	RH-DX0033TAZZ	Diode, Horizontal Blanking wave form	AD
D901, D902, D903, D904	RH-DX0039TAZZ	Diode, +B Rectifier	AE
D905	RH-DX0033TAZZ	Diode, Voltage Regulator Circuit	AD
ZD901	RH-EX0024CEZZ	Zener Diode, Voltage Reference	AF
TH251	5KD-5	Thermistor, AGC Circuit	AC
TH601	5KD-5	Thermistor, Vertical Circuit	AC
VR401	RH-VX0004TAZZ	Varistor, Audio Circuit	AD
VR601	RH-VX0004TAZZ	Varistor, Vertical Circuit	AD
VR701	RH-VX0004TAZZ	Varistor, Horizontal Circuit	AD

CAPACITORS

REF. NO.	PART NO.	DESCRIPTION	CODE
C301	VCQYKU1HM682K	.0068MFD, 50V, 10%, Mylar	AB
C302, C304, C306, C309, C311, C314, C318	VCKZPA1HF103Z	.01MFD, 50V, Discap	AA
C303	VCQYKU1HM104K	.1MFD, 50V, 10%, Mylar	AC
C305, C308	VCQYKU1HM473K	.047MFD, 50V, 10%, Mylar	AC
C307	VCKZPU1HF103Z	.01MFD, 50V, Discap	AA
C310	VCEAAH1CC477Y	470MFD, 16V, Electrolytic	AD
C312	VCCWPU1H59R0D	9PF, 50V, Discap	AB
C313	VCEAAH1HC105A	1MFD, 50V, Electrolytic	AB
C315	VCKZPA1HB102K	.001MFD, 50V, 10%, Discap	AA
C316	VCEAAH1HC335A	3.3MFD, 50V, Electrolytic	AB
C317	VCCSPA1H6101K	100PF, 50V, 10%, Discap	AA
C319	VCCSPA1H6390J	39PF, 50V, 5%, Discap	AA
C401	VCEAAH1HC105A	1MFD, 50V, Electrolytic	AB
C402	VCEAAH1EC227Y	220MFD, 25V, Electrolytic	AD
C403, C404	VCEAAH1AC476Y	47MFD, 10V, Electrolytic	AB
C405, C406, C408	VCKZPA1HF103Z	.01MFD, 50V, Discap	AA
C407	VCEAAH1EC107Y	100MFD, 25V, Electrolytic	AC
C409	VCQYKH1HM822K	.0082MFD, 50V, Mylar	AB
C601, C602	VCQYKH1HM332K	.0033MFD, 50V, 10%, Mylar	AD
C603	VCQYKH1HM223K	.022MFD, 50V, 10%, Mylar	AD
C604	VCQYSH1HM104K	.1MFD, 50V, 10%, Mylar	AC
C605, C606	RC-EZ0029TAZZ	22MFD, 16V, Electrolytic	AD
C607	VCEAAH1CC226Y	22MFD, 16V, Electrolytic	AB
C608	VCEAAH1AC107Y	100MFD, 10V, Electrolytic	AC
C609	VCQYSH1HM333K	.033MFD, 50V, 10%, Mylar	AB
C610	VCEAAH1CC108Y	1000MFD, 16V, Electrolytic	AE
C611	VCKZPA1HB102K	.001MFD, 50V, Discap	AA
C612	VCCSPA1H6101K	100MFD, 50V, 10%, Discap	AA
C701	VCQYKH1HM562K	.0056MFD, 50V, 10%, Mylar	AB
C702	VCQYKH1HM153K	.015MFD, 50V, 10%, Mylar	AD
C703	VCQYKH1HM223K	.022MFD, 50V, 10%, Mylar	AD
C704	VCQYKH1HM104K	.1MFD, 50V, 10%, Mylar	AC
C705	VCQYKH1HM473K	.047MFD, 50V, 10%, Mylar	AB
C706	VCEAAH1EC335A	3.3MFD, 25V, Electrolytic	AB
C707	VCQYKH1HM123J	.012MFD, 50V, 5%, Mylar	AB
C708	VCQYKH1HM473J	.047MFD, 50V, 5%, Mylar	AB
C709	VCKZPA1HB221K	220PF, 50V, 10%, Discap	AB
C710	VCQYKH1HM333K	.033MFD, 50V, 10%, Mylar	AB
C711	VCQYKH1HM103K	.01MFD, 50V, Discap	AB
C712	VCKYPA2HB102K	.001MFD, 500V, 10%, Discap	AA
C713	VCQYSH1HM104K	.1MFD, 50V, 10%, Mylar	AC
C714	VCQPSB2JA152K	.0015MFD, 630V, 10%, Polypro Film	AB
C715	VCKZPA1HF103Z	.01MFD, 50V, Discap	AA
C716	VCQPSC2JA223K	.022MFD, 630V, 10%, Polypro Film	AC
C717	VCQPSB2JA682K	.0068MFD, 630V, 10%, Polypro Film	AB
C718	RC-EZ0022TAZZ	4.7MFD, 25V, Spec. Electrolytic	AF
C719	VCQPSB2JA153K	.015MFD, 630V, 10%, Polypro Film	AB
C720	VCEAAH1CC337Y	330MFD, 16V, Electrolytic	AD
C721	VCEAAH1EC107Y	100MFD, 25V, Electrolytic	AC
C722	VCEAAU2EW105R	1MFD, 250V, Electrolytic	AD
C723	VCEAAU2DW106Q	10MFD, 200V, Electrolytic	AE
C724	VCQPSC2DA104K	.1MFD, 200V, 10%, Polypro Film	AC
C725	VCKYPA2HB102K	.001MFD, 500V, 10%, Discap	AA
C726	VCEAAH1CC477Y	470MFD, 16V, Electrolytic	AD
C801, C802	VCCCPA1H3390J	39PF, 50V, 5%, Discap	AB
C803	VCQYKH1HM182K	.0018MFD, 50V, 10%, Mylar	AB
C804	VCQPSC2DA104K	.1MFD, 200V, 10%, Mylar	AC
C807	VCEAAH1AC227Y	220MFD, 10V, Electrolytic	AC
C808	VCKZPA1HB821K	820PF, 50V, 10%, Discap	AB
C809	VCEAAH1CC337Y	330MFD, 16V, Electrolytic	AD
C810	VCKZPA1HF103Z	.01MFD, 50V, Discap	AA
C901, C902, C903, C904	VCKZPA1HF103Z	.01MFD, 50V, Discap	AA
C905	VCEHAQ1EC478Y	4700MFD, 25V, Electrolytic	AK
C906	VCEAAH1HC105A	1MFD, 50V, Electrolytic	AB
C907	VCEAAH1CC477Y	470MFD, 16V, Electrolytic	AD
C908	VCQPSD2DA104K	.1MFD, 200V, 10%, Mylar	AC
C909	VCQYSH1HM224K	.22MFD, 50V, 10%, Mylar	AD
C910	VCEAAH1CC476Y	47MFD, 16V, Electrolytic	AB

RESISTORS

REF. NO.	PART NO.	DESCRIPTION	CODE
R301	VRD-SB2EY331J	330 ohm	AA
R302	VRD-SB2EY124J	120K ohm	AA
R303	VRS-PU3DB470J	47 ohm, 2W, 5%, Oxide Film	AB
R304	VRD-SB2EY104J	100K ohm	AA
R306	VRD-SB2EY471J	470 ohm	AA
R307	VRD-SB2EY473J	47K ohm	AA
R404, R406, R409	VRD-SB2EY561J	560 ohm	AA
R405	VRD-SB2EY681J	680 ohm	AA
R407	VRD-SB2EY471J	470 ohm	AA
R408	VRD-SB2EY332J	3.3K ohm	AA
R410	VRD-SB2EY680J	68 ohm	AA
R411, R412	VRD-SA2HD2R2J	2.2 ohm, ½W, 5%, Carbon	AA
R413	RR-XZ0019TAZZ	22 ohm, ½W, 5%, Fuse Resistor	AB
R414	VRD-SA2HD151J	150 ohm, ½W, 5%, Carbon	AA
R415	VRD-SB2EY153J	15K ohm	AA
R601	VRD-SB2EY123J	12K ohm	AA
R602, R606	VRD-SB2EY153J	15K ohm	AA
R603	VRD-SB2EY822J	8.2K ohm	AA
R604	VRD-SB2EY332J	3.3K ohm	AA
R605	VRD-SB2EY222J	2.2K ohm	AA
R607	VRD-SB2EY1R5J	1.5 ohm	AA
R609	VRD-SB2EY5R6J	5.6 ohm	AA
R610	VRD-SB2EY1R2J	1.2 ohm	AA
R611	VRD-SB2EY103J	10K ohm	AA
R613	VRD-SB2EY101J	100 ohm	AA
R615	VRD-SB2EY183J	18K ohm	AA
R616	VRD-SB2EY683J	68K ohm	AA
R617	VRD-SB2EY100J	10 ohm	AA
R619	VRD-SB2EY151J	150 ohm	AA
R620, R621	VRD-SB2EY471J	470 ohm	AA
R622, R623	VRD-SA2HDR50J	.5 ohm, ½W, 5%, Carbon	AA
R624	VRD-SB2EY221J	220 ohm	AA
R625	VRD-SB2EY560J	56 ohm	AA
R701	VRD-SB2EY821J	820 ohm	AA
R702, R703	VRD-SB2EY682J	6.8K ohm	AA
R704, R708	VRD-SB2EY332J	3.3K ohm	AA
R705	VRD-SB2EY392J	3.9K ohm	AA
R706	VRD-SB2EY822J	8.2K ohm	AA
R707	VRD-SB2EY102J	1K ohm	AA
R709	VRC-MB2EG392J	3.9K ohm	AA
R710	VRC-SB2EY680J	68 ohm	AA
R711	VRD-SB2EY221J	220 ohm	AA
R712	VRD-SB2EY101J	100 ohm	AA
R713	VRS-PU2HB560J	56 ohm, ½W, 5%, Oxide Film	AA
R714	VRS-PU3DB150J	15 ohm, 2W, 5%, Oxide Film	AB
R715	VRS-PU3DB222J	2.2K ohm, 2W, 5%, Oxide Film	AB
R718	VRD-SB2EY563J	56K ohm	AA
R719	VRC-MA2HG106K	10Meg ohm, ½W, 10%, Carbon	AA
R720	VRD-SA2HD124J	120K ohm, ½W, 5%, Carbon	AA
R721	VRD-SA2HD473J	47K ohm, ½W, 5%, Carbon	AA
R722	VRD-SB2EY560J	56 ohm	AA
R723	RR-XZ0015TAZZ	33 ohm, ¼W, 5%, Fuse Resistor	AD
R801	VRD-SB2EY470J	47 ohm	AB
R802	VRD-SB2EY180J	18 ohm	AB
R803	VRD-SB2EY331J	330 ohm	AB
R804	VRD-SB2EY820J	82 ohm	AB
R805	VRD-SB2EY682J	6.8K ohm	AB
R806	VRD-SA2HD122J	1.2K ohm, ½W, 5%, Carbon	AB
R807	VRS-PU2HB103J	10K ohm, ½W, 5%, Oxide Film	AB
R809	VRD-SB2EY184J	180K ohm	AB
R810	VRD-SB2EY334J	330K ohm	AB
R812	VRD-SB2EY681J	680 ohm	AA
R813	VRD-SB2EY183J	18K ohm	AA
R814	RR-XZ0021TAZZ	3.3 ohm, ½W, 5%, Fuse Resistor	AB
R815	VRD-SB2EY120J	12 ohm	AA
R901	VRW-CV4DC150K	15 ohm, 20W, 10%, Cement	AE
R902, R905	VRD-SB2EY561J	560 ohm	AA
R904	VRD-SB2EY102J	1K ohm	AA
R906	VRD-SA2HD820J	82 ohm, ½W, 5%, Carbon	AA
R907	VRD-SB2EY182J	1.8K ohm	AA

Unless other wise specified all resistor are ¼W, 5%, Carbon type.

REF. NO.	PART NO.	DESCRIPTION	CODE

CONTROLS

R253	RVR-B0001VAZZ	10K ohm, Pot., RF AGC	AC
R254	RVR-B0002VAZZ	50K ohm, Pot., AGC	AC
R305, SW901	RVR-A2026TAZZ	10K ohm, Pot., Off-On/Volume	AM
R608	RVR-B7031TAZZ	100K ohm, Pot., V-Hold	AD
R612	RVR-M7097TAZZ	50K ohm, Pot., V-Size	AD
R614	RVR-M7095TAZZ	5K ohm, Pot., V-Lin	AD
R618	RVR-M7097TAZZ	50K ohm, Pot., V-Bias	AD
R808	RVR-E6004TAZZ	1K ohm, Pot., Contrast	AF
R811	RVR-B7021TAZZ	250K ohm, Pot., Brightness	AD
R903	RVR-M7092TAZZ	1K ohm, Pot., +B Adj.	AD

COILS AND TRANSFORMERS

	RCILH4035TAZZ	Deflection Yoke	AW
L301	RCILI0173TAZZ	Coil, Sound Detector	AE
L701	RCILB0021TAZZ	Coil, Horizontal Hold	AG
L702	RCILZ0044TAZZ	Coil, Horizontal Spook	AB
L703	RCILF0029TAZZ	Coil, Horizontal Spook	AB
L704	RCILZ0043TAZZ	Coil, Horizontal Lin	AH
L801	RCILI0071TAZZ	Coil, 5.5 MHz Trap	AE
L802	VP-LF151K0000	Coil, Video Peaking	AB
L803	VP-LF391K0000	Coil, Vedeo Peaking	AB
T301	RCILI0173TAZZ	Transformer, Sound IF	AE
T701	RIRNT0017TAZZ	Transformer, Horizontal Drive	AG
T702	RTRNF2036TAZZ	Transformer, Horizontal Flyback	AY
T901	RTRNP0113TAZZ	Transformer, Power	AX

PRINTED WIRING BOARD

	DUNTK0711QA05	Main Circuit	BU
	DUNTK0712RA09	CRT Circuit	AM

MISCELLANEOUS

	DCABU0080RA00	Cabinet, (Unit Ass'y) Red	BF
	DCABU0081RA00	Cabinet, (Unit Ass'y) White	BF
	GCABA1640TASA	Cabinet, (Front) Red	AW
①	GCABA1640TASB	Cabinet, (Front) White	AW
②	HDECB0062TASA	Decoration Metal	AD
③	HINDM0167TASA	Indication Metal	AA
	GCABB1640TASA	Cabinet, (Rear) Red	AT
④	GCABB1640TASB	Cabinet, (Rear) White	AT
⑤	JKNBC0240TASA	Knob, VHF Channel	AE
⑥	JKNBM0053TASA	Knob, VHF Tuning	AC
⑦	JKNBC0241TASA	Knob, UHF Channel	AD
⑧	JKNBM0054TASA	Knob, UHF Tuning	AC
⑨	JKNBK0076TASA	Knob, Pull-On/Volume	AC

REF. NO.	PART NO.	DESCRIPTION	CODE
	QACCKO001TA08	Cord, AC	AM
⑩	QANTR0013TAZZ	Antenna, Telescopic	AN
	QANT-0004VAZZ	Terminal, Antenna	AQ
	VTUUNT-3C01//	Unit, VHF Tuner, Picture IF	BL
	VTUUTF-2C7///	UHF Tuner	BA
F601	QFS-C4012CEZZ	Fuse, 400mA	AE
F901	QFS-C3111TAZZ	Fuse, 315mA	AE
F902	QFS-C2521TAZZ	Fuse, 2.5AT	AF
F903	QFS-C2022TAZZ	Fuse, 2AT	AE
⑪	QJAKA0001TAZZ	Jack, Earphone	AD
	RPH0E0001TAZZ	Earphone	AE
SP401	VSP0080P-16YA	Speaker	AN
SG701, SG702, SG801	QSPGC0003CEZZ	Spark Gap	AB
	QPLGN0404CEZZ	Plug, Deflection Yoke	AB
	QPLGN0505CEZZ	Plug, Power Circuit/RF Unit	AB
	QS0CB0005TAZZ	Socket, DC	AL
	QS0CN0502CEZZ	Socket, Power Circuit	AB
	QS0CV0026TAZZ	Socket, CRT	AC
	QCNW-D018TA08	Cord, DC